



What are LSOs?

LSOs or Local Support Organisations are central to the 'Social Mobilisation' approach of the Rural Support Programmes (RSPs). In a bid to reduce poverty and empower marginalised people (especially women), the RSPs mobilise rural communities into a three-tiered structure, which consists of Community Organisations (COs) - neighbourhood level community groups, Village Organisations (VOs) - village level federations of COs, and LSOs - union council level federations of VOs. LSOs are able to carry out community-led development at a much greater level due to the advantage they gain from numbers. As the tertiary tier, LSOs are also uniquely able to develop linkages with government and non-government organisations, donors agencies and the private sector.

LSO Initiatives

LSO Abasind Rural Support Organisation

Date of Formation:	4 June, 2010
District:	Kohistan
Union Council:	Komila
Total Households in Union Council:	1,649
Organised Households:	1,058
Coverage:	64%
No of Village Organisations (VOs):	9 (men's)
No of Community Organisations (COs):	62 (men's)
No of General Body Members:	27 (men)
No of Executive Committee Members:	11 (men)

LSO Abasind Rural Support Organisation (ARSO) was formed in district Kohistan in 2010, with technical assistance and social guidance from the Sarhad Rural Support Programme (SRSP) Kohistan. LSO ARSO is one of the vibrant LSOs of district Kohistan and has taken various initiatives since its formation for the socio-economic development of the local community. LSO ARSO has implemented a UNDP funded project in collaboration with DTCE for the revival of local government bodies in two union councils. Besides this, the LSO had played a tremendous role in relief and rescue operations after the deadly July 2010 floods in Kohistan. The LSO has established strong linkages with several government and non-government agencies besides mediating access to their services and resources for the benefits of its members.

Innovation in Micro Hydel Projects

District Kohistan is one of the most backward and underdeveloped districts of Khyber Pakhtunkhwa. There are several factors responsible for their backwardness, including far flung and cut off locations, poor infrastructure, lack of attention from government in development of the area etc.



Wooden Turbine in operation

On the other hand, Kohistan is a resource rich area. It has the capacity to serve as the hydel electricity power house for the whole country because it has been enriched with numerous rivers and streams flowing from high mountain areas down to the river Indus. But little efforts have been made regarding their utilisation on a larger scale by the government. As a result of this, around 80% population of the district is still deprived of electricity. To cope with the situation, local communities construct micro hydel projects (MHPs) with technical and sometimes with partial financial assistance from donor agencies to generate electricity. The bulk of the cost of MHPs is contributed by the local people in the form of free labour, local material and cash. However, the cost of conventional machinery used in the construction of MHP is quite high. Therefore, several communities are still deprived of electricity simply because they are unable to bear the high cost of the project.

The average cost estimate for a standard 3kv MHP with conventional machinery is around Rs. 158,000. The main item is the water turbine pulley that alone costs Rs. 120,000. Conventionally, the water turbine pulley is made from iron. So besides its initial high cost, it has several maintenance related demands. For example, it can easily get rusted and become obsolete if not maintained regularly. Second, it often breaks and needs welding for repair, which is extremely costly, because the entire turbine has to be transported to a town area. Third, it is heavier, therefore requires more water to rotate it.

Keeping in view these issues, the LSO leaders decided to find out alternative means to replace the iron turbine that is cheaper in price and also requires minimum maintenance and management cost. This, they thought, would bring down the cost of the entire unit.

Taking the idea from the wooden turbines of local water mills, they decided to experiment it in the MHPs. For experimental purposes, the LSO selected a small village called Jan Bela situated in union council Komila. The people of Jan Bela were deprived of electricity for a long time and they were desperately seeking it. Hence, the villagers easily agreed to partner with the LSO to implement the pilot project.

It was decided to copy the design by using wood as manufacturing material instead of iron. For this purpose, the LSO contacted an experienced local carpenter. The wood of cedar was opted for this purpose, which is locally called "de-yar". Cedar wood is a precious wood used in construction and is known for its strength and long life. After the completion of the wooden turbine, it was fitted with a 3kv generator. Fortunately, the source of water was nearby the project site, therefore, no channel was required to bring water. The project started working in March 2012. It worked quite efficiently. The total cost of manufacturing the wooden turbine was Rs. 12,000 only, while the cost of an iron turbine is around Rs. 120,000. So the wooden turbine proved ten times cheaper than the iron turbine. As a result of this, the total cost of the pilot MHP came down to as low as Rs. 50,000 compared to Rs. 158,000 by the

conventional method. Below is the cost comparison of conventional and newly made systems:

Primary parts of the system	Cost of conventional system (PKR)	Cost of newly formed system (PKR)
Generator	15,000	15,000
Fan Belt	1,000	1,000
Water Turbine-Pulley	120,000 (Iron Turbine)	12,000 (Wooden Turbine)
Iron pipes	12,000	12,000
Water tank	10,000	10,000
Total	158,000	50,000

The electricity generated by the pilot MHP is being provided to 30 houses successfully. The project runs from sunset to 10am the next morning and provides uninterrupted electricity for lighting, mobile charging and watching TV etc.

An Operation and Management Committee comprised of three CO members has been established for the smooth operation of the project. A user fee of Rs. 50 per month is received from the beneficiary households and is deposited into the CO account. The LSO leaders oversee and monitor the project on a regular basis. Earlier, they used to burn kerosene oil for lighting that cost each household Rs. 800 to 1,000 per month. The local community therefore is very happy for having reliable electricity at such a cheap price.

After running the project for a month and a half, the LSO evaluated it and found it to be much more efficient and cost effective than they initially had thought. The following are the positive points of the pilot project:

- Wooden turbine is 10 times cheaper than iron turbine.
- Wooden turbine is rust free. Therefore, its project life is much longer than the iron turbine.
- Wooden turbine is unbreakable. Thus, there will be a considerable saving both in the maintenance cost and time. Moreover, it will ensure uninterrupted provision of electricity to the beneficiary households.
- Due to its light weight, the wooden turbine rotates much faster than the iron turbine. Moreover, it requires less water pressure. Hence, it can generate more electricity with lesser amounts of water. Therefore, it is more feasible during the winter season when water volumes decrease in the streams.
- There is no need of welding while repairing a wooden turbine, which saves both money and resources.
- No special expertise is required for repairing a wooden turbine. It can easily be repaired or even replaced by any local carpenter with locally available wood.

Future Plans

After the successful implementation of the pilot project and evaluating its impacts, LSO ARSO is now looking for improving and polishing the system further. For example, they are going to experiment the viability of wooden pipes to replace iron pipes to save both initial and replacement cost of the pipes.

Moreover, the LSO is now planning similar projects for other interested villages of their union council. For this purpose, an initial survey of electricity-deprived villages has been conducted. The villages identified include Chichar, Bara Komila, Kuz Komila, Zed Khar, Shamaal and Rangao. The LSO will provide technical assistance while the concerned village people will bear the financial cost and undertake any required labour work, free of cost.